

CLAIMS

What is claimed is:

- 1 1. A method for rendering arbitrary content for display on a particular viewing
2 device, comprising:
 - 3 (a) receiving content;
 - 4 (b) assembling the content into an object-oriented structure in a centralized format;
 - 5 (c) translating the content in the centralized format to a markup language document
6 compatible with a display environment of a viewing device;
 - 7 (d) formatting the markup language document for display on the viewing device
8 utilizing a descriptor, wherein the descriptor defines parameters of the display
9 environment; and
 - 10 (e) outputting the formatted markup language document to the viewing device.
- 1 2. The method as recited in claim 1, wherein the object-oriented structure is a tree-
2 type structure.
- 1 3. The method as recited in claim 1, wherein the content is assembled into the
2 object-oriented structure node by node.
- 1 4. The method as recited in claim 1, wherein content that is assembled into a string
2 is parsed for translating the content into the centralized format, wherein the
3 translated content is assembled into the object-oriented structure.
- 1 5. The method as recited in claim 1, further comprising receiving content written in
2 the markup language, and outputting the content written in the markup language
3 to the viewing device.

- 1 6. The method as recited in claim 1, wherein the centralized format is an XML
2 format.
- 1 7. The method as recited in claim 1, further comprising translating the content to a
2 desired language.
- 1 8. The method as recited in claim 1, further comprising translating the content to a
2 desired character set.
- 1 9. The method as recited in claim 1, wherein the formatting of the markup
2 language document for display on the viewing device is based at least in part on
3 a display screen size of the viewing device.
- 1 10. The method as recited in claim 9, wherein the formatting of the markup
2 language document for display on the viewing device includes parsing a table
3 into a format that is viewable on a display of the viewing device.
- 1 11. The method as recited in claim 1, wherein the formatting of the markup
2 language document for display on the viewing device includes splitting the
3 markup language document into multiple pages for display on the viewing
4 device.
- 1 12. The method as recited in claim 1, wherein the formatting of the markup
2 language document for display on the viewing device includes inserting content
3 in a template.
- 1 13. The method as recited in claim 1, wherein the display device is a wireless
2 device.

- 1 14. A computer program product for rendering arbitrary content for display on a
2 particular viewing device, comprising:
3 (a) computer code for receiving content;
4 (b) computer code for assembling the content into an object-oriented structure in a
5 centralized format;
6 (c) computer code for translating the content in the centralized format to a markup
7 language document compatible with a display environment of a viewing device;
8 (d) computer code for formatting the markup language document for display on the
9 viewing device utilizing a descriptor, wherein the descriptor defines parameters
10 of the display environment; and
11 (e) computer code for outputting the formatted markup language document to the
12 viewing device.

- 1 15. A system for rendering arbitrary content for display on a particular viewing
2 device, comprising:
3 (a) logic for receiving content;
4 (b) logic for assembling the content into an object-oriented structure in a centralized
5 format;
6 (c) logic for translating the content in the centralized format to a markup language
7 document compatible with a display environment of a viewing device;
8 (d) logic for formatting the markup language document for display on the viewing
9 device utilizing a descriptor, wherein the descriptor defines parameters of the
10 display environment; and
11 (e) logic for outputting the formatted markup language document to the viewing
12 device.

- 1 16. A method for rendering arbitrary content for display on a particular viewing
2 device, comprising:
3 (a) receiving content;

- 4 (b) assembling the content into a Document Object Model (DOM) tree in a
5 centralized format;
- 6 (c) translating the content in the DOM tree to a markup language document
7 compatible with a display environment of a viewing device;
- 8 (d) formatting the markup language document for display on the viewing device;
- 9 (e) splitting the markup language document into multiple pages for display on the
10 viewing device; and
- 11 (f) outputting the formatted markup language document to the viewing device.

1 17. The method as recited in claim 16, wherein the content is assembled into the
2 DOM tree node by node.

1 18. The method as recited in claim 16, wherein content that is assembled into a
2 string is parsed for translating the content into the centralized format, wherein
3 the translated content is assembled into the DOM tree.

1 19. The method as recited in claim 16, further comprising receiving content written
2 in the markup language, and outputting the content written in the markup
3 language to the viewing device.

1 20. The method as recited in claim 16, wherein the centralized format is an XML
2 format.

1 21. The method as recited in claim 16, wherein a descriptor defines parameters of
2 the display environment, wherein the markup language document is formatted
3 for display on the viewing device utilizing the descriptor.

1 22. The method as recited in claim 16, further comprising translating the content to
2 a desired language.

- 1 23. The method as recited in claim 16, further comprising translating the content to
2 a desired character set.
- 1 24. The method as recited in claim 16, wherein the splitting of the markup language
2 document is based at least in part on a display screen size of the viewing device.
- 1 25. The method as recited in claim 16, wherein splitting of the markup language
2 document is based at least in part on a memory of the viewing device.
- 1 26. The method as recited in claim 16, wherein the formatting of the markup
2 language document for display on the viewing device includes parsing a table
3 into a format that is viewable on a display of the viewing device.
- 1 27. The method as recited in claim 16, wherein the formatting of the markup
2 language document for display on the viewing device includes inserting content
3 in a template.
- 1 28. The method as recited in claim 16, wherein the display device is a wireless
2 device.
- 1 29. A computer program product for rendering arbitrary content for display on a
2 particular viewing device, comprising:
3 (a) computer code for receiving content;
4 (b) computer code for assembling the content into a Document Object Model
5 (DOM) tree in a centralized format;
6 (c) computer code for translating the content in the DOM tree to a markup language
7 document compatible with a display environment of a viewing device;
8 (d) computer code for formatting the markup language document for display on the
9 viewing device;

- 10 (e) computer code for splitting the markup language document into multiple pages
11 for display on the viewing device; and
12 (f) computer code for outputting the formatted markup language document to the
13 viewing device.

- 1 30. A system for rendering arbitrary content for display on a particular viewing
2 device, comprising:
3 (a) logic for receiving content;
4 (b) logic for assembling the content into a Document Object Model (DOM) tree in a
5 centralized format;
6 (c) logic for translating the content in the DOM tree to a markup language
7 document compatible with a display environment of a viewing device;
8 (d) logic for formatting the markup language document for display on the viewing
9 device;
10 (e) logic for splitting the markup language document into multiple pages for display
11 on the viewing device; and
12 (f) logic for outputting the formatted markup language document to the viewing
13 device.

- 1 31. A method for dividing content into multiple pages for display on a particular
2 viewing device, comprising:
3 (a) receiving content;
4 (b) translating the content to a markup language document compatible with a
5 display environment of a viewing device;
6 (c) splitting the markup language document into multiple items;
7 (d) parsing the multiple items on multiple pages;
8 (e) outputting one page of the set of pages to the viewing device, wherein the one
9 page has a pointer to at least one of the other pages.

- 1 32. The method as recited in claim 31, wherein each item is placed on a separate
2 page.
- 1 33. The method as recited in claim 31, wherein each of the pages includes a header.
- 1 34. The method as recited in claim 31, wherein an item is split across multiple pages
2 if the item is too large for a memory of the viewing device.
- 1 35. The method as recited in claim 34, wherein a tag of the item is not split.
- 1 36. The method as recited in claim 34, wherein a split is made within contents of a
2 tag, wherein the tag is placed on each of the multiple pages.
- 1 37. The method as recited in claim 31, wherein an item is split across multiple pages
2 if the item is too large for a display screen size of the viewing device.
- 1 38. The method as recited in claim 37, wherein a tag of the item is not split.
- 1 39. The method as recited in claim 37, wherein a split is made within contents of a
2 tag, wherein the tag is placed on each of the multiple pages.
- 1 40. The method as recited in claim 31, wherein words are not split.
- 1 41. The method as recited in claim 31, wherein selected portions of the content are
2 used to organize the pages.
- 1 42. The method as recited in claim 31, wherein pages not being output to the
2 viewing device are stored in a cache.

1 43. The method as recited in claim 42, wherein the cached pages are deleted upon
2 closing of a session.

1 44. A computer program product for dividing content into multiple pages for display
2 on a particular viewing device, comprising:

- 3 (a) computer code for receiving content;
4 (b) computer code for translating the content to a markup language document
5 compatible with a display environment of a viewing device;
6 (c) computer code for splitting the markup language document into multiple items;
7 (d) computer code for parsing the multiple items on multiple pages;
8 (e) computer code for outputting one page of the set of pages to the viewing device,
9 wherein the one page has a pointer to at least one of the other pages.

1 45. A system for dividing content into multiple pages for display on a particular
2 viewing device, comprising:

- 3 (a) logic for receiving content;
4 (b) logic for translating the content to a markup language document compatible with
5 a display environment of a viewing device;
6 (c) logic for splitting the markup language document into multiple items;
7 (d) logic for parsing the multiple items on multiple pages;
8 (e) logic for outputting one page of the set of pages to the viewing device, wherein
9 the one page has a pointer to at least one of the other pages.

1 46. A method for rendering arbitrary content for display on a particular viewing
2 device, comprising:

- 3 (a) receiving content;
4 (b) assembling the content into an object-oriented structure in a centralized format;
5 (c) translating the content in the centralized format to a markup language document
6 compatible with a display environment of a viewing device;

- 7 (d) parsing a table into a format that is viewable on a display of the viewing device;
- 8 (e) splitting the markup language document into multiple pages for display on the
- 9 viewing device;
- 10 (f) performing further formatting of the markup language document for display on
- 11 the viewing device; and
- 12 (g) outputting the formatted markup language document to the viewing device.

- 1 47. A method for rendering arbitrary content for display on a particular wireless
- 2 viewing device, comprising:
- 3 (a) receiving content;
- 4 (b) assembling the content into a Document Object Model (DOM) tree in a
- 5 centralized format node by node, wherein content that is assembled into a string
- 6 is parsed for translating the content into the centralized format;
- 7 (c) translating the content to a desired language;
- 8 (d) translating the content to a desired character set;
- 9 (e) translating the content in the DOM tree to a markup language document
- 10 compatible with a display environment of a wireless viewing device;
- 11 (f) parsing a table into a format that is viewable on a display of the viewing device;
- 12 (g) splitting the markup language document into multiple pages for display on the
- 13 viewing device;
- 14 (h) performing further formatting of the markup language document for display on
- 15 the viewing device, wherein the descriptor defines parameters of the display
- 16 environment;
- 17 (i) splitting the markup language document into multiple pages for display on the
- 18 wireless viewing device, wherein the splitting of the markup language document
- 19 is based at least in part on a display screen size of the viewing device and at
- 20 least in part on a memory of the viewing device; and
- 21 (j) outputting the formatted markup language document to the wireless viewing
- 22 device.

- 1 48. A method for dividing content into multiple pages for display on a particular
2 viewing device, comprising:
- 3 (a) receiving content;
- 4 (b) translating the content to a markup language document compatible with a
5 display environment of a viewing device;
- 6 (c) splitting the markup language document into multiple items;
- 7 (d) parsing the multiple items on multiple pages;
- 8 (e) splitting an item across multiple pages if the item is too large for a memory of
9 the viewing device;
- 10 (f) splitting an item across multiple pages if the item is too large for a display
11 screen size of the viewing device;
- 12 (g) making a split within contents of a tag, wherein the tag is placed on each of the
13 multiple pages, wherein the tag itself is not split;
- 14 (h) using selected portions of the content to organize the pages;
- 15 (i) outputting one page of the set of pages to the viewing device, wherein the one
16 page has a pointer to at least one of the other pages;
- 17 (j) storing pages not being output to the viewing device in a cache; and
18 (k) deleting the cached pages upon closing of a session.